

COMMON USES

Oxygen-fuel torches are often used to join metals, for sealing samples in glass tubing, and relieving stress in glass systems.

Operators need to ensure that the work area is free of combustible and flammable materials. The clearance should be graded to the hazard...flammable vapors may travel great distances to an ignition source.

Appropriate personal protective equipment is required, specific to the task, such as eye and face protection, appropriately filtered/tinted glasses, heat-resistant gloves, lab coats, aprons, and close-toed shoes. Leather is the first choice in protective apparel, with wool second and cotton last. Clothing rated as **FR** (flame-resistant) is available from several providers.

Synthetic fiber fabrics should never be worn around a hot work process as the material will melt into the skin causing serious injury.

Lab burners, such as Bunsen burners, are useful for heating materials in a process. Again, the area should be free of combustible and flammable materials, with attention given to separation of the process from flammable vapors. Protective equipment appropriate for the hazard should be worn, commonly heat-resistant gloves, lab coats, and face protection.

TYPES OF TORCH WORK

Designated Area describes sites where torch work is done routinely, such as a glass working bench or a welding/soldering table. The designated area is evaluated during the Readiness Review, annual Independent Walk-throughs, Program/Department Walk-throughs, and routinely by Plant Protection Officers. Contact ESH&A at 4-2153 to discuss establishing a new designated area.

Transient Work is done on an “as-needed” basis, and typically involves leak repairs or short installation jobs. As the work is often done by trained staff unfamiliar with specific work site conditions, a Hot Work Permit is required for each transient work task. Permits are issued by an authorized person. The permits are kept in Plant Protection, and last for no longer than one day.

Contact ESH&A at 4-2153 with questions.



FOUR PRACTICES

Pre-Plan the Job

Is this a designated area or transient work task? Assess the hazards of the materials involved in particular. Is anything new?

Personal Safety

Are there toxic substances or fumes involved? Are work surfaces heat and flame resistant? Do you need engineering controls (a hood or duct for fumes)? As a minimum, eye/face protection is required, but will other PPE (heat-resistant gloves, lab coat, filtered/tinted glasses) be needed?

Work Area Safety

Move combustibles and flammables from the work area. Cover floor/wall openings to prevent hot slag or sparks from escaping the area. Don't create tripping hazards with hoses or cables. Ensure the exit path remains clear. Purge chambers/vessels of flammable or toxic materials before heating. Do you need a fire watch for property or personnel safety?

Equipment Safety

Inspect all connections before using equipment. Look for loose fittings, hoses, clamps, cables; look for abrasions. Tag defective equipment Out Of Service. Refer to manufacturer's material for specific inspection criteria.

LEAVE NOTHING UNATTENDED

Turn off the torch when you leave the room.

Turn off the gases at the cylinder at the end of the day, or when you leave the area for any length of time.

TURN IT OFF WHEN YOU'RE DONE



If you have any questions regarding torch work in a laboratory setting, contact Environment, Safety, Health and Assurance at 4-2153.

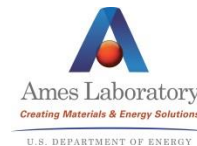
ROLES AND RESPONSIBILITIES

Division, Institute and Program Directors and Department Managers shall ensure group leaders under their supervision implement, maintain and document all the elements of the ESH&A program within each group.

Group Leaders function as the first line managers for the day-to-day operational ESH&A in their areas. Group leaders are responsible for:

- Completing a Readiness Review for all activities.
- Ensuring employees receive institutional training.
- Providing and documenting job-specific training (i.e., torch operation, glass working practices and principles, determination of task-specific personal protective equipment).
- Ensuring the health and safety of their employees.

Environment, Safety, Health & Assurance is responsible for leading Readiness Reviews and institutional training such as Personal Protective Equipment, Cylinder Safety, Chemical Hazard Communication, and Hazardous Waste Generator Training. ESH&A also serves as a resource for program directors, group leaders, and employees.



TORCH SAFETY AT AMES LABORATORY



Torches and open flames are useful tools for research. However, by nature they involve risk that needs to be evaluated and controlled.

RESTRICTIONS

The sprinkler and fire detection systems must be operational during all torch operations. Work on structural members (such as scaffolding, stairs, ladders and stands), utilities (gas, air, helium recovery, domestic/de-ionized water) and pressure vessels is only to be performed by Facilities & Engineering Services staff.

If you have questions regarding these definitions, call ESH&A at 4-2153 or Facilities and Engineering Services at 4-3756 for assistance.